0044367

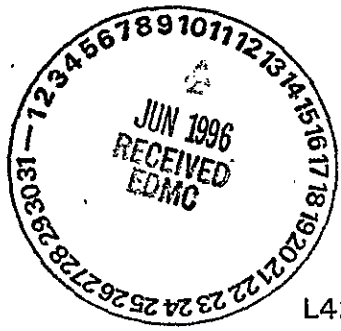
LK4209

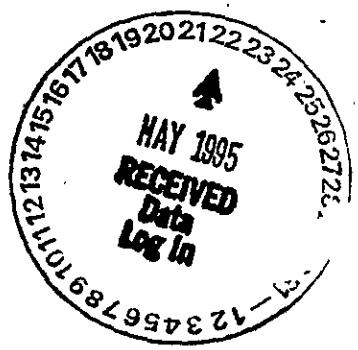
Lockheed
Environmental Systems & Technologies Co.

Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 582-7605
Fax: (702) 361-8146

May 9, 1995





Ms. Joan Kessner
Bechtel Hanford, Inc.
345 Hills
P.O. Box 969
Richland, WA 99352

RE:	Log-in No.:	L4209
	Quotation No.:	Q400000-B
	SAF:	B95-039
	Document File No.:	0406596
	WHC Document File No.:	207
	SDG No.:	LK4209

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 6 April 1995.

The temperature of the cooler upon receipt was 5°C. Sample containers received agree with the chain-of-custody documentation. Sample containers were received intact. The vials for volatile analyses did not contain headspace. Samples were received in time to meet the analytical holding time requirements.

The case narratives included in the following attachments provide a detailed description of all events that occurred during sample preparation, analysis, and data review specific to the samples and analytical methods requested.

A list of data qualifiers, chain-of-custody forms, sample receiving checklist, and log-in report are also enclosed representing the samples received within this group.

If you have any questions concerning the analysis or the data please call Kathleen Hall at (509) 943-4423.

Lockheed Analytical Services

Log-in No.: L4209
Quotation No.: Q400000-B
SAF: B95-039
Document File No.: 0406596
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SDG No.: LK4209
Page1

Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

" I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manger or a designee, as verified by the following signature."

Sincerely,

Kathleen Hallmann for.

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

CASE NARRATIVE
INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann — **Prepared By**

April 7, 1995 — **Date**

CASE NARRATIVE
ORGANIC ANALYSES

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES
[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	***For CLP Analyses Only*** -- Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	***For Routine, Non-CLP Analyses Only*** -- Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	***For CLP Analyses Only*** -- Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	***For CLP Reporting Only*** -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	***For AAS Only*** -- Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*****	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a[1]	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b[1]	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

[1] Used as footnote designations on the QC summary form.

Lockheed Analytical Services
DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 04/12/1995]

For Use On The Analytical Data Reporting Forms	
A	***For CLP analyses Only*** -- The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. *[pesticide/PCB analyses only]*
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to surrogates being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	*Estimated value* -- (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs ***(For CLP Reporting Only)***.
N	***For CLP Reporting Only*** -- Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	***For CLP Reporting Only*** -- The percent difference between the concentrations detected on both GC columns was greater than 25 percent *[pesticide/PCB analyses only]*.
U	***For CLP Reporting Only*** -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
N/A (% Moisture)	N/A in the % moisture cell indicates that data are reported on an "*as received*" basis. A value in the % moisture cell indicates that data are reported based on a "*dry weight*" basis.
For Use On The QC Data Reporting Forms	
*****	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a[1]	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b[1]	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

[1] Used as footnote designations on the QC Summary Form.

Sample Disposition Record

Control #: 95-00286 rev 4/7/95
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND
SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION
Number of Samples: 62 rev 4/7/95
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE
Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A
NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION
Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/ [signature] 4/7/95
Project Coordinator (Print/Sign) Date

J. R. Freeman-Pollard/ [signature] 4/10/95
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)
Inspection Number:
Inspection Results:

N/A
Inspector (Print/Sign) Date

FROM THE DESK OF: **R. L. WEISS**
SAMPLE & DATA MANAGEMENT
372-2695/H4-14

TO: K. M. Hall
Lockheed

DATE: April 6, 1995

SUBJECT: INCORRECT SAF NUMBER ON CHAIN-OF-CUSTODY

Samples received this morning at the laboratory (B0F6X2 & B0F6X3) identified SAF# B95-034 on the Chain-of-Custody (COC). Lockheed is not included in this SAF# as a laboratory to perform analysis. The project identified on the COC was 200-ZP-1 Point of Compliance Wells. The sample numbers and project title match those assigned to SAF# B95-039. The SAF# on the COC is in error and should be B95-039.

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Apr 06 1995, 12:21 pm

Login Number: L4209
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	PR	Due Date
L4209-1	B0F6X2	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 157					
Water 1 S SCREENING		Hold: 01-OCT-95			
L4209-2	B0F6X2	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
Water 1 S 300.0 NITRATE		Hold: 06-APR-95			
L4209-3	B0F6X2	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
Water 1 S 8240 VOLATILES		Hold: 18-APR-95			
L4209-4	B0F6X2	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
L4209-5	B0F6X2	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
L4209-6	B0F6X3	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
Water 1 S 8240 VOLATILES		Hold: 18-APR-95			
L4209-7	B0F6X3	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
L4209-8	B0F6X3	04-APR-95	06-APR-95		11-MAY-95
temp 5; SAF# B95-039					
Location: 156RAD2-02					
L4209-9	REPORT TYPE	06-APR-95	06-APR-95		11-MAY-95
Location:					
Water 1 S EDD - DISK DEL.					
Water 1 S GCMS2					
Water 1 S INORG TYPE 2 RPT					

Signature: MMell

Date: 4-6-95

C4C0546

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST L4209

Page 1 of 1

Data Turnaround: ☐ Priority ■ Normal

Collector: K. Lee	Company Contact: J.R. Freeman-Pollard	Telephone: (509) 376-1882
Project Designation: 200-ZP-1 Point of Compliance Wells - March 1995	Sampling Location: 200 West	SAF No.: B95-034
Ice Chest No.: SML-114	Field Logbook No.: EFR-1123	Method of Shipment: Hand Delivered
Shipped To: Lockheed	Offsite Property No.: W95-0-0204-23	Bill of Lading/Air Bill No.: 290462413 87
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: Maintain between 2 C and 6 C.		

SAMPLE ANALYSIS	Preservation	HCl	Cool 4C	Cool 4C		HCl					
	Type of Container	Gs	G	P		Gs					
	No. of Container(s)	3	1	1		3					
	Volume	40mL	500mL	20mL		40mL					
		VOA-TCL CCl4, Chloro-form, TCE	Anions-IC NO3	Activity Scan		VOA-TCL CCl4, Chloro-form, TCE					

Sample No.	Matrix*	Date Sampled	Time Sampled									
B0F6X2	W	4-4-95	1100	X	X	X						
B0F6X3	W	4-4-95	1100					X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: K. Lee	Date/Time: 4-4-95 1310	Received By: ERC B.Whitten	Date/Time: 1310 4-4-95
Relinquished By: ERC B.Whitten	Date/Time: 0900 4-5-95	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Data Deliverable Summary

Sample analysis for nitrate by EPA 300.0 is being requested for information only. The BHI Contractor acknowledges the 48-hour holding time will not be met.

The Activity Scan is for all samples listed on this chain of custody.

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By: [signature]	Title: Sample Custodian	Date/Time: 4-6-95 0905	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time	

0000137

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	XR5135

END OF REPORT

B0F6X2
B0F6X3
BW
4-5-95

C4665

MESSAGE CONFIRMATION

04/06/95 11:52.

NO.= 581 ID=LOCKHEED LAB SAMPLE RECEIVING

TIME	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
11:48	04'17"	5099434218	G3 -S	05	OK	0000

C41659

MESSAGE CONFIRMATION

04/06/95 08:20
'ON NO.= 580 ID=LOCKHEED LAB SAMPLE RECEIVING

	TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
;	08:19	01'06"	5099434218	G3 -S	01	OK	0000

04106590

L4209

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 4-6-95 / 0905 Client Name Westinghouse

Project/Client # _____ Batch or Case # 095-039

Cooler ID (if noted on outside of cooler) SML-114

1. Condition of shipping container? good
2. Custody Seals on cooler intact? Yes [X] No [ ]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Chain of Custody record is taped on inside of cooler lid? Yes [X] No [ ]
5. Vermiculite/packing material is: Wet [ ] Dry [X] _____
6. Each sample is in a plastic bag? Yes [X] No [ ] _____
7. Number of sample containers in cooler: 8
8. Samples have:
   - Y tape
   - X custody seals
   - ____ hazard labels
   - Y appropriate sample labels
9. Samples are:
   - X in good condition
   - ____ broken
   - ____ other
   - ____ leaking
   - ____ have air bubbles
10. Coolant Present? Yes [X] No [ ] Sample Temperature 5°C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #(s) N/A
    Request for Analysis #(s) NA
    Airbill # 290 4624 387 Carrier FedX
12. Have any anomalies been identified above? Yes [ ] No [ ] N/A
13. Memos have been initiated for all anomalies identified above? Yes [ ] NA

Printed Name/Signature Anthony L. Miller [signature] Date/Time 4-6-95 / 0905

CLC 1054

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: Westinghouse Job No. L4209 Cooler ID:

COOLER CONDITION UPON RECEIPT			
Temperature of cooler upon receipt:	5°C		
temperature of temp. blank upon receipt:			
	Yes	No	* Comments/Discrepancies
custody seals intact	X		
chain of custody present	X		
blue ice (or equiv.) present/frozen	X		
rad survey completed	X		
SAMPLE CONDITION UPON RECEIPT			
	Yes	No	* Comments/Discrepancies
all bottles labeled	X		
samples intact	X		
proper container used for sample type	X		
sample volume sufficient for analysis	X		
proper pres. indicated on the COC	X		
VOA's contain headspace		X	
are samples bi-phasic (if so, indicate sample ID'S):			n/a
MISCELLANEOUS ITEMS			
	Yes	No	* Comments/Discrepancies
samples with short holding times	X		Nitrate
samples to subcontract		X	
ADDITIONAL COMMENTS/DISCREPANCIES			
Completed by / date:	[illegible] 4.6.95		
Sent to the client (date/initials):		** Client's signature upon receipt:	
*Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt*			
*** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146*			

Lockheed Analytical Laboratory
SAMPLE SUMMARY REPORT (su02)
Bechtel Hanford, Inc. * Richland, WA

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
B0F6X2	L4209-1		Water	SCREENING
	L4209-2		Water	300.0 NITRATE
	L4209-3		Water	8240 VOLATILES
B0F6X3	L4209-6		Water	8240 VOLATILES
REPORT TYPE	L4209-9		Water	EDD - DISK DEL.
	L4209-9		Water	GCMS2
	L4209-9		Water	INORG TYPE 2 RPT

C4C059

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0F6X2	Date Collected: 04-APR-95
Matrix: Water	Date Received: 06-APR-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Nitrate-N	mg/L	300.0	5.5	0.02		06-APR-95	21372	L4209-2

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X2	LAL Sample ID:	L4209-3
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(s)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	9.9	10.	BJ
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X2	LAL Sample ID: L4209-3
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

000039

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X3	LAL Sample ID:	L4209-6
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	109	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	12.	10.	B
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000040

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X3	LAL Sample ID: L4209-6
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Method Blank	LAL Sample ID:	21687MB
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	102	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	111	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(s)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	7.4	10.	J
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000042

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: METHOD BLANK	LAL Sample ID: 21687MB
Date Received: N/A	Date Analyzed: 14-APR-95
Analytical Batch: 041495-8260-E1	Analytical Dilution Factor: 1

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
UNKNOWN	20	7.35	J

LOCKHEED ANALYTICAL SERVICES

SPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MS
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	8.8	10.	BJ
1,1-Dichloroethene	75-35-4	50.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	51.	5.0	
Trichloroethene	79-01-6	44.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	52.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	49.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000044

LOCKHEED ANALYTICAL SERVICES

SPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MSD
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	104	88-110
Bromofluorobenzene	106	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	8.8	10.	BJ
1,1-Dichloroethene	75-35-4	51.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	54.	5.0	
Trichloroethene	79-01-6	46.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	55.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	53.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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LOCKHEED ANALYTICAL SERVICES

SPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Lab Ctrl Sample	LAL Sample ID:	21687LCS
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	98	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	10.	10.	B
1,1-Dichloroethene	75-35-4	49.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	52.	5.0	
Trichloroethene	79-01-6	44.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	53.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	50.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MS
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

Constituent	Spike Added ug/L	Sample Concentration ug/L	MS Concentration ug/L	% Recovery	QC Limits % Recovery
1,1-Dichloroethene	50.0	0.000	49.5	99	62-124
Benzene	50.0	0.000	51.5	103	67-127
Trichloroethene	50.0	0.000	43.6	87	60-120
Toluene	50.0	0.000	51.8	104	72-132
Chlorobenzene	50.0	0.000	49.4	99	68-128

000047

LOCKHEED ANALYTICAL SERVICES

MATRIX SPIKE DUPLICATE DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MSD
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	104	88-110
Bromofluorobenzene	106	86-115

Constituent	Spike Added ug/L	MSD Concentration ug/L	% Recovery	RPD	QC Limits RPD	QC Limits % Recovery
1,1-Dichloroethene	50.0	51.5	103	4	14	62-124
Benzene	50.0	54.2	108	5	11	67-127
Trichloroethene	50.0	45.9	92	6	14	60-120
Toluene	50.0	54.6	109	5	13	72-132
Chlorobenzene	50.0	53.4	107	8	13	68-128

000048

LOCKHEED ANALYTICAL SERVICES

LCS DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Lab Ctrl Sample	LAL Sample ID:	21687LCS
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	98	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

Constituent	Spike Added ug/L	LCS Concentration ug/L	LCS % Recovery	QC Limits
1,1-Dichloroethene	50.0	49.2	98	62-124
Benzene	50.0	51.9	104	67-127
Trichloroethene	50.0	43.6	87	60-120
Toluene	50.0	53.0	106	72-132
Chlorobenzene	50.0	50.2	100	68-128

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LOCKHEED ANALYTICAL SERVICES

VOLATILE INTERNAL STANDARD
AREA AND RT SUMMARY

Instrument ID: GC/MS-E

Date/Time Analyzed: 14-APR-95 09:09
LAL Batch ID: 041495-8260-E1

		IS1 (PFB) Area	RT	IS2 (DFB) Area	RT	IS3 (CBZ) Area	RT	IS4 (DCB) Area	RT
12 HOUR STD		93009	9.94	180122	11.02	170056	14.94	105345	19.38
UPPER LIMIT		186018	10.44	360244	11.52	340112	15.44	210690	19.88
LOWER LIMIT		46504	9.44	90061	10.52	85028	14.44	52672	18.88
Client Sample ID	LAL Sample ID								
Method Blank	21687MB	89521	9.93	173921	11.02	162572	14.94	97786	19.37
BOF6X2	21687MS	94728	9.94	179825	11.02	169347	14.94	103348	19.37
B0F6X2	L4209-3	99376	9.93	186966	11.02	175110	14.93	108694	19.37
B0F6X3	L4209-6	81272	9.93	156440	11.02	145287	14.94	89847	19.37
056E08501	L4260-1	82047	9.93	156415	11.02	145814	14.94	89032	19.38
Lab Ctrl Sample	21687LCS	94636	9.93	181673	11.01	170113	14.94	103623	19.37
BOF6X2	21687MSD	90074	9.93	169560	11.02	155715	14.94	94814	19.37
A555004	L4263-25	79007	9.93	148169	11.03	135853	14.95	79418	19.37
056E08501	21687MS_1	83456	9.93	157293	11.02	144470	14.94	86896	19.38
056E08501	21687MSD_1	87077	9.94	163415	11.02	151353	14.95	89325	19.37

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

DATA VALIDATION REPORT
for
200-ZP-1 Point of Compliance Wells
March 1995
General Chemistry Analysis
SDG LK4209-LAS
LATA VB403.69

Bechtel Hanford Inc.
P.O. Box 969
Richland, Washington

July 17,1995

Table of Contents

200-ZP-1 Point of Compliance Wells - March 1995
Data Validation Narrative

INTRODUCTION

All samples in Sample Delivery Group (SDG) LK4029-LAS (VB 403.69) were validated at level "C" as defined in the Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002, Rev. 2).

The analysis was performed by Lockheed Analytical Services.

ANALYSES REQUESTED

See Table 1.

DATA QUALITY OBJECTIVES

Precision:	Goals for precision were met.
Accuracy:	Goals for accuracy were met.
Sample Result Verification:	Not applicable to summary data packages which contain no raw data.
Detection Limits:	Detection limit goals were met for all sample results as specified in the *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038, Rev. 1.
Completeness:	The data package was 100% complete for all requested analyses.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data as unusable.

Table 1
Chain-of-Custody
Analysis Request

LATA ID #: VB403.69 SDG: LK4209-LAS

Sample Information							Analyses Requested		
SAMPLE NO.	DATE COLLECTED	MATRIX	SAF	SAMPLING LOCATION	FIELD QC INFO	TEMP °C	1	2	3
B0F6X2	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W8	5	X	X	X

Method References:

	Analysis	Method
1.	Anions (NO_3)	300.0
2.	Activity Scan	Lab Specific
3.	Rad Screen (222-S)	Lab Specific

NOTES:

1. ROD 95-0026: An incorrect SAF number was put on the COC. The lab was instructed to perform the analyses by SAF B95-039.
2. Split sample field QC results are evaluated in this report, however, sample B0F6W8 is validated in SDG W0506-QES.

REFERENCES

WHC 1993, *Data Validation Procedures for Chemical Analyses*, WHC-SD-EN-SPP-002, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

BHI 1995, *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038 Rev. 1, Bechtel Hanford, Inc., Richland, Washington.

GLOSSARY OF VALIDATION APPLIED QUALIFIERS (CHEMISTRY)

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows.

U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ- Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during data validation, the associated quantitation limit is an estimate.

J- Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision making purposes.

BJ- Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R- Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency the data are unusable.

UR- Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data are unusable due to an identified QC deficiency.

GLOSSARY OF LABORATORY APPLIED QUALIFIERS

Qualifiers which may be applied by the laboratory in compliance with applicable requirements are as follows.

Commonly used laboratory general chemistry qualifiers:

U- Indicates the analyte was analyzed for but not detected in the sample.

Qualification Summary Table

General Chemistry

ANALYTE	TYPE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
No qualifiers were added by the validator					

General Chemistry Field QC

ANALYTE	TYPE	QUALIFIER	FIELD QC SAMPLES	DQO	ASSESSMENT
Nitrate	FIELD QC	NONE	B0F6W8/B0F6X2	PRECISION	Field split precision is acceptable.

Comments:
Data qualification is not required based on field split precision, however field split results are noted here to alert the data user to uncertainties in the data set during decision making processes.

Data Summary Table

GENERAL CHEMISTRY
DATA SUMMARY TABLE

LATA ID#: VB403.69		HEIS #:	B0F6X2	
		Date:	4-Apr-95	
		Matrix:	WATER	
Constituent	CAS #	Units	Results	Q
Nitrate by IC	14797-55-8	mg/L	5.5	

Shaded areas indicate changes by the validator.

Sample Results (Form I's)

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0F6X2	Date Collected: 04-APR-95
Matrix: Water	Date Received: 06-APR-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Nitrate-N	mg/L	300.0	5.5	0.02		06-APR-95	21372	L4209-2

bjs 7-7-95

000012 000023

Checklist

LATA GENERAL CHEMISTRY
DATA VALIDATION CHECKLIST

4. BLANKS	YES	NO	N/A
Were laboratory blanks performed for all applicable analyses?	☐	☐	☒
Are laboratory blank results acceptable?	☐	☐	☒
Were preparation blanks analyzed?	☒	☐	☐
Are preparation blank results acceptable?	☒	☐	☐

If NO(s) are checked, see BLANK AND SAMPLE DATA SUMMARY form

5. ACCURACY	YES	NO	N/A
Were spike samples analyzed at the proper frequency?	☒	☐	☐
Are all spike sample recoveries acceptable?	☒	☐	☐
Were laboratory control samples (LCS) analyzed at the proper frequency?	☐	☐	☒
Are all LCS recoveries acceptable?	☐	☐	☒
Validation calculation checks were performed and are acceptable.	☐	☐	☒

If NO(s) are checked, see ACCURACY DATA SUMMARY form

6. PRECISION	YES	NO	N/A
Were laboratory duplicates analyzed at the proper frequency?	☒	☐	☐
Are all duplicate RPD values acceptable?	☒	☐	☐
Were MS/MSDs analyzed?	☐	☐	☒
Are all MS/MSD RPD values acceptable?	☐	☐	☒
Validation calculation checks were performed and are acceptable.	☐	☐	☒

If NO(s) are checked, see PRECISION DATA SUMMARY form

7. FIELD QC SAMPLES	YES	NO	N/A
Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified?	☒	☐	☐
Are field/trip blank results acceptable? (see Blank Data Summary form)	☐	☐	☒
Are field duplicate RPD values acceptable? (see Field QC calculations)	☐	☐	☒
Are field split RPD values acceptable? (see Field QC calculations)	☒	☐	☐
Are performance audit sample results acceptable?	☐	☐	☒

Comments: BF06X2 is a field split of B0F6W8 B0F6W8 is validated in VB 403.68 (W0506-QES).

8. ANALYTE QUANTITATION	YES	NO	N/A
Was analyte quantitation performed properly?	☐	☐	☒
Are results calculated properly?	☐	☐	☒
Validation calculation checks were performed and are acceptable.	☐	☐	☒

Comments:

9. REPORTED RESULTS AND DETECTION LIMITS	YES	NO	N/A
Are results reported for all requested analyses?	☒	☐	☐
Are all results supported in the raw data?	☐	☐	☒
Do results meet the CRDLs?	☒	☐	☐
Validation calculation checks were performed and are acceptable.	☐	☐	☒

Comments:

VALIDATION SUMMARY

For deficiencies (major and minor) and comments, please refer to the Qualification Summary Table.

LATA GENERAL CHEMISTRY
DATA VALIDATION CHECKLIST

HOLDING TIME SUMMARY

SDG:	LK4209-LAS		VALIDATOR: BJ SEYMOUR					DATE:	07-Jul-95	
PROJECT:	200-ZP-1		REVIEWER: BJ MORRIS					LATA NO.:	VB403,69	
HEIS-SN	MATRIX CODE	ANALYSIS	DATE COLLECTED	PREP DATE	ANALYSIS DATE	PREP HT (days)	*Required HT (days)*	ANALYSIS HT (days)	*Required HT (days)*	VAL Q
B0F6X2	WATER	Nitrate	4-Apr-95	N/A	06-Apr-95	N/A	*N/A*	2	*2*	NONE

000017

GENERAL CHEM FIELD SPLIT EVALUATION

LATA ID#: VB403.69		HEIS #:	B0F6W8		B0F6X2		RPD	DIF	DL
		Date:	4-Apr-95		4-Apr-95				
		Matrix:	WATER		WATER				mg/L
			ORIGINAL		SPLIT				
Constituent	CAS #	Units	Results	Q	Results	Q			
Nitrate by IC	14797-55-8	mg/L	5.98		5.50		8.4%		0.02

EVALUATION:

1. If both sample results are >5*DL the RPD is used for evaluation.
2. The results have exhibited acceptable precision.

Laboratory Case Narrative

CASE NARRATIVE
INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann — **Prepared By**

April 7, 1995 — **Date**

7-16-95

CASE NARRATIVE
ORGANIC ANALYSES

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

7-16-95

000006

Chain-of-Custody Information

Bechtel Hanford, Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST L4209	Page 1 of 1

Collector: K. Lee	Company Contact: J.R. Freeman-Pollard	Telephone: (509) 376-1882	Data Turnaround: ☐ Priority ■ Normal
Project Designation: 200-ZP-1 Point of Compliance Wells - March 1995	Sampling Location: 200 West	SAF No.: B95-034	
Ice Chest No.: SML-114	Field Logbook No.: EFL-1123	Method of Shipment: Hand Delivered	
Shipped To: Lockheed	Offsite Property No.: W95-0-0204-23	Bill of Lading/Air Bill No.: 2904624387	

Possible Sample Hazards/Remarks:

Special Handling and/or Storage: Maintain between 2 C and 6 C.

		Preservation		HCl	Cool 4C	Cool 4C		HCl					
		Type of Container		Gs	G	P		Gs					
		No. of Container(s)		3	1	1		3					
		Volume		40mL	500mL	20mL		40mL					
SAMPLE ANALYSIS				VOA-TCL CCl4, Chloroform, TCE	Anions-IC NO3	Activity Scan		VOA-TCL CCl4, Chloroform, TCE					
Sample No.	Matrix*	Date Sampled	Time Sampled										
B0F6X2	W	4-4-95	1104	X	X	X							
B0F6X3	W	4-4-95	1104					X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: K. Lee / K. Lee	Date/Time: 4/4/95 1310	Received By: Kelli Whitten / B. Whitten ERC	Date/Time: 4-4-95 1310
Relinquished By: Kelli Whitten / B. Whitten ERC	Date/Time: 4-5-95 0900	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Data Deliverable Summary

Sample analysis for nitrate by EPA 300.0 is being requested for information only. The BHI Contractor acknowledges the 48-hour holding time will not be met.

The Activity Scan is for all samples listed on this chain of custody.

Matrix*: S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solids; DL = Drum Liquids; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other

LABORATORY SECTION	Received By: A. Miller	Title: Sample Custodian	Date/Time: 4-6-95 0905
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

0000023

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********************************	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	XR5135

END OF REPORT

B0F6X2
B0F6X3
BW
4-5-95

7-16-98 7-16-95

~~000014~~

000024 E16654

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: Westinghouse Job No. L4209 Cooler ID:

COOLER CONDITION UPON RECEIPT			
Temperature of cooler upon receipt:	5°C		
temperature of temp. blank upon receipt:			
	Yes	No	* Comments/Discrepancies
custody seals intact	X		
chain of custody present	X		
blue ice (or equiv.) present/frozen	X		
rad survey completed	X		

SAMPLE CONDITION UPON RECEIPT			
	Yes	No	* Comments/Discrepancies
all bottles labeled	X		
samples intact	X		
proper container used for sample type	X		
sample volume sufficient for analysis	X		
proper pres. indicated on the COC	X		
VOA's contain headspace		X	
are samples bi-phasic (if so, indicate sample ID'S):			n/a

MISCELLANEOUS ITEMS			
	Yes	No	* Comments/Discrepancies
samples with short holding times	X		Nitrate
samples to subcontract		X	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: [signature] 4.6.95

Sent to the client (date/initials): ** Client's signature upon receipt:

*Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt.*

*** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146*

000025000020

4-6-95

Sample Disposition Record

Control #: 95-0028 6 RW 4/7/95
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND
SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION
Number of Samples: 2 RW 4/7/95
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE
Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A
NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION
Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/ [signature] 4/7/95
Project Coordinator (Print/Sign) Date

J. R. Freeman-Pollard/ [signature] 4/10/95
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)
Inspection Number:
Inspection Results:

N/A
Inspector (Print/Sign) Date

END OF PACKAGE

Los Alamos Technical Associates, Inc.

8633 Gage Blvd. / Kennewick, WA 99336 / Telephone (509) 783-4369 / FAX (509) 783-9661

COPY

July 17, 1995
LATA95-145

Ms. Joan Kessner
CH2M Hill
345 Hills
Richland, WA 99352

Subject: VB403.69, SDG LK4209-LAS

Dear Ms. Kessner:

Attached is the data validation report for analytical results for 200-ZP-1 Point of Compliance Wells - March 1995, (SDG LK4209-LAS). The package was received by Los Alamos Technical Associates on June 28, 1995.

If you have any questions, please let me know.

Sincerely,

Marsha C. Webb

Marsha C. Webb
Deputy Project Manager

Attachment

cc: Jeanette Duncan, CH2M Hill
VB403.69
MCW/lb

ln

DATA VALIDATION REPORT
for
200-ZP-1 Point of Compliance Wells
March 1995
Volatile Organic Analysis
SDG LK4209-LAS
LATA VB403.69

Bechtel Hanford Inc.
PO Box 969
Richland, Washington

July 17, 1995

Table of Contents

200-ZP-1 Point of Compliance Wells - March 1995
Data Validation Narrative

INTRODUCTION

All samples in Sample Delivery Group (SDG) LK4029-LAS (VB 403.69) were validated at level "C" as defined in the Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002, Rev. 2).

The analysis was performed by Lockheed Analytical Services.

ANALYSES REQUESTED

See Table 1.

DATA QUALITY OBJECTIVES

Precision:	Goals for precision were met.
Accuracy:	Goals for accuracy were met.
Sample Result Verification:	Not applicable to summary data packages which contain no raw data.
Detection Limits:	Detection limit goals were met for all sample results as specified in the *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038, Rev. 1.
Completeness:	The data package was 100% complete for all requested analyses.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

Minor deficiencies were identified during validation which required qualification of data as estimated. See the **"Qualification Summary Table"**.

Table 1
Chain-of-Custody
Analysis Request

LATA ID #: VB403.69 SDG: LK4209-LAS

Sample Information							Analyses Requested		
SAMPLE NO.	DATE COLLECTED	MATRIX	SAF	SAMPLING LOCATION	FIELD QC INFO	TEMP °C	1	2	3
B0F6X2	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W8	5	X	X	X
B0F6X3	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W9	5	X	X	X

Method References:

	Analysis	Method
1.	VOA (TCL + CCl_4, Chloroform, TCE)	8240
2.	Activity Scan	Lab Specific
3.	RAD Screen (222-S)	Lab Specific

NOTES:

1. ROD 95-0026: An incorrect SAF number was put on the COC. The lab was instructed to perform the analyses by SAF B95-039.
2. Split sample field QC results are evaluated in this report, however, samples B0F6W8 and B0F6W9 were validated in SDG W0506-QES.

REFERENCES

WHC 1993, *Data Validation Procedures for Chemical Analyses*, WHC-SD-EN-SPP-002, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

BHI 1995, *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038 Rev. 1, Bechtel Hanford, Inc., Richland, Washington.

GLOSSARY OF VALIDATION APPLIED QUALIFIERS (CHEMISTRY)

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows.

U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ- Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during data validation, the associated quantitation limit is an estimate.

J- Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision making purposes.

BJ- Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R- Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency the data are unusable.

UR- Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data are unusable due to an identified QC deficiency.

JN- Indicates a tentatively identified compound (TIC) that has been determined to be valid in terms of identification and quantitation.

UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

NJ- Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific application (i.e., usable for decision making purposes).

N- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision making purposes).

GLOSSARY OF LABORATORY APPLIED QUALIFIERS

Qualifiers which may be applied by the laboratory in compliance with applicable requirements are as follows.

Commonly used laboratory qualifiers:

U- Indicates the analyte was analyzed for but not detected in the sample.

B- Indicates the analyte was detected in the method blank.

J- Indicates the analyte was detected in the sample at a concentration greater than the instrument detection limit (IDL), but less than the contract required quantitation limit (CRQL).

Qualification Summary Table

Qualification Summary Table

Volatile Organic

ANALYTE	TYPE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Acetone	MINOR	U	B0F6X2 B0F6X3	BLANKS	Preparation blank value is positive and outside acceptance criteria.

Comments:
An upward adjustment to meet the CRQL for sample results qualified non-detect (U) due to blank contamination has been made by the validator on the Data Summary Tables and Form Is as required.

Volatile Organic Field QC

ANALYTE	TYPE	QUALIFIER	FIELD QC SAMPLES	DQO	ASSESSMENT
ALL	FIELD QC	NONE	B0F6W8/B0F6X2 B0F6W9/B0F6X3	PRECISION	Field split precision is acceptable.

Comments:
Data qualification is not required based on field split precision, however, field split results are noted here to alert the data user to uncertainties in the data set during decision making processes.

Data Summary Table

VOLATILE ORGANIC
DATA SUMMARY TABLE

LATA ID#: VB403.69		HEIS #:	B0F6X2		B0F6X3	
		Date:	4-Apr-95		4-Apr-95	
		Matrix:	WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	5.0	U	5.0	U
Bromomethane	74-83-9	µg/L	5.0	U	5.0	U
Vinyl chloride	75-01-4	µg/L	5.0	U	5.0	U
Chloroethane	75-00-3	µg/L	5.0	U	5.0	U
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U
Acetone	67-64-1	µg/L	10	U	12	U
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U
1,2-Dichloroethene (total)	540-59-0	µg/L	N/A		N/A	
Chloroform	67-66-3	µg/L	5.0	U	5.0	U
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U
2-Butanone	78-93-3	µg/L	10	U	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U
Benzene	71-43-2	µg/L	5.0	U	5.0	U
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U
Bromoform	75-25-2	µg/L	5.0	U	5.0	U
4-Methyl-2-pentanone	108-10-1	µg/L	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U
Toluene	108-88-3	µg/L	5.0	U	5.0	U
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U
Styrene	100-42-5	µg/L	5.0	U	5.0	U
m,p-Xylene	1330-20-7	µg/L	5.0	U	5.0	U
o-Xylene	95-47-6	µg/L	5.0	U	5.0	U
Trichlorofluoromethane	75-69-4	µg/L	5.0	U	5.0	U
Vinyl acetate	108-05-4	µg/L	10	U	10	U
2-Chloroehtylvinylether	110-75-8	µg/L	20	U	20	U
trans-1,2-Dichloroethene	156-50-5	µg/L	5.0	U	5.0	U
cis-1,2-Dichloroethene	156-59-2	µg/L	5.0	U	5.0	U
1,3 Dichlorobenzene	541-73-1	µg/L	5.0	U	5.0	U
1,4 Dichlorobenzene	106-46-7	µg/L	5.0	U	5.0	U
1,2 Dichlorobenzene	95-50-1	µg/L	5.0	U	5.0	U

Shaded areas indicate changes by the validator.

Sample Results (Form I's)

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X2	LAL Sample ID:	L4209-3
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	~~9.9~~ 10	10.	U ~~BJ~~
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

RM 7-7-95

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X2	LAL Sample ID: L4209-3
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

7-6-95

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LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X3	LAL Sample ID:	L4209-6
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	109	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	12.	10.	U B
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

BM 7.6.95

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VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X3	LAL Sample ID: L4209-6
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

7.6.95

Checklist

LATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

VALIDATION PROCEDURE: ☐ WHC-CM-5-3, Rev. 0 ☒ WHC-SD-EN-SPP-002, Rev. 2

PROJECT:	200-ZP-1		SDG:	LK4209-LAS	
VALIDATOR:	BJ MORRIS BM 7-17-95	LATA NO:	VB403.69	DATE:	6-Jul-95
REVIEWER:	BJ SEYMOUR BJS 7-17-95	LAB:	LAS	CASE:	N/A
SAF NO:	B95-039	QAPP NO:	BHI-00038, R1	SAP NO:	N/A

ANALYSES REQUESTED

☒ Volatiles 8240

SAMPLE NO.	MATRIX
B0F6X2 B0F6X3	WATER

COMMENTS:

ROD 95-0026: An incorrect SAF was put on the COC. The lab was instructed to perform the analyses according to SAF B95-039.

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

	YES	NO	N/A
Is technical verification documentation present?	☒	☐	☐
Is a case narrative present?	☒	☐	☐

2. HOLDING TIMES

	YES	NO	N/A
Are sample holding times acceptable?	☒	☐	☐

See HOLDING TIME SUMMARY form

3. INSTRUMENT TUNING/PERFORMANCE AND CALIBRATIONS

	YES	NO	N/A
Is the GC/MS tuning/performance check acceptable?	☐	☐	☒
Were initial calibrations performed on all instruments at the proper frequency?	☐	☐	☒
Are initial calibrations acceptable?	☐	☐	☒
Were continuing calibrations performed on all instruments at the proper frequency?	☐	☐	☒
Are continuing calibrations acceptable?	☐	☐	☒
Validation calculation checks were performed and are acceptable.	☐	☐	☒

If NO(s) are checked, see CALIBRATION DATA SUMMARY form

4. BLANKS	YES	NO	N/A
Were laboratory blanks analyzed?	X		
Are laboratory blank results acceptable?		X	

If NO(s) are checked, see BLANK AND SAMPLE DATA SUMMARY form

5. ACCURACY	YES	NO	N/A
Were surrogates/System Monitoring Compounds analyzed at the proper frequency?	X		
Are all surrogate/System Monitoring Compound recoveries acceptable?	X		
Were spike samples (MS/MSD) analyzed at the proper frequency?	X		
Are all spike sample (MS/MSD) recoveries acceptable?	X		
Validation calculation checks were performed and are acceptable.			X

If NO(s) are checked, see ACCURACY DATA SUMMARY form

6. PRECISION	YES	NO	N/A
Were MS/MSDs analyzed?	X		
Are all MS/MSD RPD values acceptable?	X		
Validation calculation checks were performed and are acceptable.			X

If NO(s) are checked, see PRECISION DATA SUMMARY form

7. FIELD QC SAMPLES	YES	NO	N/A
Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified?	X		
Are field/trip blank results acceptable? (see Blank Data Summary form)			X
Are field duplicate RPD values acceptable? (see Field QC calculations)			X
Are field split RPD values acceptable? (see Field QC calculations)	X		
Are performance audit sample results acceptable?			X

Comments: B0F6X2 is a field split of B0F6W8. B0F6W8 is validated in W0506-QES (VB403.68)

B0F6X3 is a field split of B0F6W9. B0F6W9 is validated in W0506-QES (VB403.68)

8. SYSTEM PERFORMANCE	YES	NO	N/A
Were internal standards analyzed?	☐	☐	☒
Are all internal standard areas acceptable?	☐	☐	☒
Are all internal standard retention times acceptable?	☐	☐	☒

9. COMPOUND IDENTIFICATION AND QUANTITATION	YES	NO	N/A
Is compound identification acceptable?	☐	☐	☒
Is compound quantitation acceptable?	☐	☐	☒
Are all TICs properly identified and coded?	☐	☐	☒

10. REPORTED RESULTS AND QUANTITATION LIMITS	YES	NO	N/A
Are results reported for all requested analyses?	☒	☐	☐
Are all results supported in the raw data?	☐	☐	☒
Do results meet the CRQLs?	☒	☐	☐
Validation calculation checks were performed and are acceptable.	☐	☐	☒

Comments:

VALIDATION SUMMARY

For deficiencies (major and minor) and comments, please refer to the Qualification Summary Table.

LATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

HOLDING TIME SUMMARY

SDG: LK4209-LAS			VALIDATOR: BJ MORRIS						DATE: – 06-Jul-95	
PROJECT: 200-ZP-1			REVIEWER: BJ SEYMOUR						LATA NO.: VB403.69	
HEIS-SN	MATRIX CODE	ANALYSIS	DATE COLLECTED	PREP DATE	ANALYSIS DATE	PREP HT (days)	*Required HT (days)*	ANALYSIS HT (days)	*Required HT (days)*	VAL Q
B0F6X2	WATER	Volatiles	4-Apr-95	N/A	14-Apr-95	N/A	*N/A*	10	*14*	None
B0F6X3	WATER	Volatiles	4-Apr-95	N/A	14-Apr-95	N/A	*N/A*	10	*14*	None

LATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

BLANK DATA SUMMARY

SDG:	LK4209-LAS		VALIDATOR:	BJ MORRIS				DATE:	06-Jul-95
PROJECT:	200-ZP-1		REVIEWER:	BJ SEYMOUR				LATA NO.:	VB403.69
BLANK ID	ANALYTE	RESULT	LAB Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	VAL Q
Prep	Acetone	7.4	J		µg/L		74	B0F6X2 B0F6X3	U

LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Method Blank	LAL Sample ID:	21687MB
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	102	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	111	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	7.4	10.	J
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

BM 7.6.95

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VOLATILES FIELD SPLIT EVALUATION

LATA ID#: VB403.69		HEIS #:	B0F6W8		B0F6X2		RPD	DIF	DL
		Date:	4-Apr-95		4-Apr-95				
		Matrix:	WATER		WATER				µg/L
			ORIGINAL		SPLIT				
Constituent	CAS #	Units	Results	Q	Results	Q			
Chloromethane	74-87-3	µg/L	10	U	5.0	U			
Bromomethane	74-83-9	µg/L	10	U	5.0	U			
Vinyl chloride	75-01-4	µg/L	10	U	5.0	U			
Chloroethane	75-00-3	µg/L	10	U	5.0	U			
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U			
Acetone	67-64-1	µg/L	100	U	10	U			
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U			
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U			
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethene (total)	540-59-0	µg/L	5.0	U	N/A				
Chloroform	67-66-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U			
2-Butanone	78-93-3	µg/L	100	U	10	U			
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U			
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U			
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U			
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U			
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U			
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U			
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U			
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U			
Benzene	71-43-2	µg/L	5.0	U	5.0	U			
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U			
Bromoform	75-25-2	µg/L	5.0	U	5.0	U			
4-Methyl-2-pentanone	108-10-1	µg/L	50	U	10	U			
2-Hexanone	591-78-6	µg/L	50	U	10	U			
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U			
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U			
Toluene	108-88-3	µg/L	5.0	U	5.0	U			
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U			
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U			
Styrene	100-42-5	µg/L	5.0	U	5.0	U			
Xylenes (Total)	1330-20-7	µg/L	5.0	U	N/A				
m,p-Xylene	1330-20-7	µg/L	N/A		5.0	U			
o-Xylene	95-47-6	µg/L	N/A		5.0	U			
Trichlorofluoromethane	75-69-4	µg/L	N/A		5.0	U			
Vinyl acetate	108-05-4	µg/L	N/A		10	U			
2-Chloroehtylvinylether	110-75-8	µg/L	N/A		20	U			
trans-1,2-Dichloroethene	156-50-5	µg/L	N/A		5.0	U			
cis-1,2-Dichloroethene	156-59-2	µg/L	N/A		5.0	U			
1,3 Dichlorobenzene	541-73-1	µg/L	N/A		5.0	U			
1,4 Dichlorobenzene	106-46-7	µg/L	N/A		5.0	U			
1,2 Dichlorobenzene	95-50-1	µg/L	N/A		5.0	U			

"N/A" = Not Available

EVALUATION:

1. Field duplicates are not evaluated for precision if both results are non-detect.

Shaded areas indicate changes by the validator.

VOLATILES FIELD SPLIT EVALUATION

LATA ID#: VB403.69		HEIS #:	B0F6W9		B0F6X3		RPD	DIF	DL
		Date:	4-Apr-95		4-Apr-95				
		Matrix:	WATER		WATER				µg/L
			ORIGINAL		SPLIT				
Constituent	CAS #	Units	Results	Q	Results	Q			
Chloromethane	74-87-3	µg/L	10	U	5.0	U			
Bromomethane	74-83-9	µg/L	10	U	5.0	U			
Vinyl chloride	75-01-4	µg/L	10	U	5.0	U			
Chloroethane	75-00-3	µg/L	10	U	5.0	U			
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U			
Acetone	67-64-1	µg/L	100	U	12	U			
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U			
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U			
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethene (total)	540-59-0	µg/L	5.0	U	N/A				
Chloroform	67-66-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U			
2-Butanone	78-93-3	µg/L	100	U	10	U			
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U			
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U			
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U			
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U			
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U			
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U			
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U			
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U			
Benzene	71-43-2	µg/L	5.0	U	5.0	U			
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U			
Bromoform	75-25-2	µg/L	5.0	U	5.0	U			
4-Methyl-2-pentanone	108-10-1	µg/L	50	U	10	U			
2-Hexanone	591-78-6	µg/L	50	U	10	U			
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U			
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U			
Toluene	108-88-3	µg/L	5.0	U	5.0	U			
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U			
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U			
Styrene	100-42-5	µg/L	5.0	U	5.0	U			
Xylenes (Total)	1330-20-7	µg/L	5.0	U	NA				
m,p-Xylene	1330-20-7	µg/L	NA		5.0	U			
o-Xylene	95-47-6	µg/L	NA		5.0	U			
Trichlorofluoromethane	75-69-4	µg/L	NA		5.0	U			
Vinyl acetate	108-05-4	µg/L	NA		10	U			
2-Chloroehtylvinylether	110-75-8	µg/L	NA		20	U			
trans-1,2-Dichloroethene	156-50-5	µg/L	NA		5.0	U			
cis-1,2-Dichloroethene	156-59-2	µg/L	NA		5.0	U			
1,3 Dichlorobenzene	541-73-1	µg/L	NA		10	U			
1,4 Dichlorobenzene	106-46-7	µg/L	NA		5.0	U			
1,2 Dichlorobenzene	95-50-1	µg/L	NA		5.0	U			

"NA" = Not Available

EVALUATION:

1. Field duplicates are not evaluated for precision if both results are non-detect.

Shaded areas indicate changes by the validator.

Laboratory Case Narrative

CASE NARRATIVE
INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann — **Prepared By**

April 7, 1995 — **Date**

7-16-95

CASE NARRATIVE
ORGANIC ANALYSES

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

7-16-95

Bechtel Hanford, Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST L4209	Page 1 of 1

Collector: K. Lee	Company Contact: J.R. Freeman-Pollard	Telephone: (509) 376-1882	Data Turnaround: ☐ Priority ■ Normal
Project Designation: 200-ZP-1 Point of Compliance Wells - March 1995	Sampling Location: 200 West	SAF No.: B95-034	
Ice Chest No.: SML-114	Field Logbook No.: EFL-1123	Method of Shipment: Hand Delivered	
Shipped To: Lockheed	Offsite Property No.: W95-0-0204-23	Bill of Lading/Air Bill No.: 2904624387	
Possible Sample Hazards/Remarks			
Special Handling and/or Storage: Maintain between 2 C and 6 C.			

				Preservation	HCl	Cool 4C	Cool 4C		HCl					
				Type of Container	Gs	G	P		Gs					
				No. of Container(s)	3	1	1		3					
				Volume	40mL	500mL	20mL		40mL					
SAMPLE ANALYSIS					VOA-TCL CCl4, Chloro-form, TCE	Anions-IC NO3	Activity Scan		VOA-TCL CCl4, Chloro-form, TCE					
Sample No.	Matrix*	Date Sampled	Time Sampled											
BOF6X2	W	4-4-95	1100		X	X	X							
BOF6X3	W	4-4-95	1100						X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: [signature] K Lee	Date/Time: 4/5/95 1310	Received By: [signature] ERC B. Whitten	Date/Time: 1310 4-4-95
Relinquished By: [signature] ERC B. Whitten	Date/Time: 0900 4-5-95	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Data Deliverable Summary

Sample analysis for nitrate by EPA 300.0 is being requested for information only. The BHI Contractor acknowledges the 48-hour holding time will not be met.

The Activity Scan is for all samples listed on this chain of custody.

Matrix*
S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION	Received By: [signature]	Title: Sample Custodian	Date/Time: 4-6-95 0905
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

9513385.0000

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	XR5135

END OF REPORT

B0F6X2
B0F6X3
BW
4-5-95

7-14-95

000014

000030 E46659

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: Westinghouse Job No. L4209 Cooler ID:

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: 5°C

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
custody seals intact	X		
chain of custody present	X		
blue ice (or equiv.) present/frozen	X		
rad survey completed	X		

SAMPLE CONDITION UPON RECEIPT

	Yes	No	* Comments/Discrepancies
all bottles labeled	X		
samples intact	X		
proper container used for sample type	X		
sample volume sufficient for analysis	X		
proper pres. indicated on the COC	X		
VOA's contain headspace		X	
are samples bi-phasic (if so, indicate sample ID'S):			n/a

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		Nitrate
samples to subcontract		X	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: [signature] 4.6.95

Sent to the client (date/initials): ** Client's signature upon receipt:

*Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt*

*** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146*

Supplemental Information

Sample Disposition Record

Control #: 95-00256 MM 4/7/95
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND
SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION
Number of Samples: 62 MM 4/7/95
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE
Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A
NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION
Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/ [signature] 4/7/95
Project Coordinator (Print/Sign) Date

J. R. Freeman-Pollard/ [signature] 4/10/95
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)
Inspection Number:
Inspection Results:

N/A
Inspector (Print/Sign) Date

END OF PACKAGE